

RESPONSE TO COMMENTS

**Response to Alabama Department of Environmental Management Comments
Draft Site Investigation Report, Fill Area West of Range 19, Parcel 233(7)
Fort McClellan, Calhoun County, Alabama (dated November 5, 2003)**

Comments from Stephen A. Cobb, Chief, Governmental Hazardous Waste Branch, ADEM Land Division, dated June 11, 2004.

General Comments

Comment 1: The report states that chromium and nickel were anomalously high in groundwater sample collected at this parcel, and that the elevated levels may be indicative of contamination (page 5-5 lines 15-16). Chromium and nickel are also listed as Chemicals of Potential Concern by Fort McClellan (page 6-1 lines 25-27). Although these analytical results were estimated, nickel was higher than its SSSL and chromium was higher than both its SSSL and MCL. There are no background values for chromium and nickel.

	Value	SSSL	BKG	MCL
Chromium	0.130 mg/kg	4.69x10 ⁻³ mg/kg	NA	0.100 mg/kg
Nickel	0.0704 mg/kg	0.0313 mg/kg	NA	0.1 mg/kg

The Department understands that this land has been extensively graded for road construction, as this parcel is located within the right-of-way for the Eastern Bypass. However, the impacts to potential receptors of site groundwater appear to warrant further review. Because groundwater is not expected to be confined by road construction or the road itself, groundwater movement will continue. Thus, the Army should provide conclusions and recommendations addressing the presence of nickel and chromium in the groundwater, and the possible effects of groundwater migration to nearby areas.

Response 1: Agree. To address the presence of chromium and nickel in groundwater, groundwater data were evaluated from four additional wells that closely surround the site. Two of these wells (HR-73Q-MW02 and HR-73Q-MW03) are located upgradient approximately 400 and 800 feet of the site, respectively. One well (HR-232QX-MW15) is located downgradient at a distance of approximately 200 feet and one well (HR-228Q-MW02) is located sidegradient at a distance of approximately 400 feet.

The data from the surrounding wells indicate that chromium was not detected in any of the wells. Although nickel was detected in one upgradient well (HR-73Q-MW03), the result was "B" flagged, indicating the presence of laboratory artifacts. This result was below the SSSL.

It is also worth noting that the field duplicate sample collected at PPMP-233-GP04 (data shown in Appendix H) contained considerably lower concentrations of both chromium and nickel. The estimated nickel concentration in the duplicate sample (0.0152 mg/L) was below its SSSL (0.031 mg/L) and was approximately five times lower than the concentration in the regular field sample (0.0704 mg/L). The estimated chromium concentration in the duplicate sample (0.0217 mg/L) exceeded the SSSL (0.0047 mg/L) but was approximately six times lower than the concentration in the field sample (0.13 mg/L).

Therefore, the chromium and nickel in groundwater at Parcel 233(7) are considered to be isolated results rather than indications of a larger plume. Based on the foregoing information and given the projected reuse of the parcel, impacts to groundwater in the vicinity of Parcel 233(7) appear to be minimal. This information was added to the text, tables, and figures.

Specific Comments

Comment 2: Page 2-1, First sentence: The sentence is misleading because the word “current” indicates that the environmental condition of this parcel remains the same as when the environmental baseline study (EBS) was completed. However, the EBS presented the environmental condition of the property before construction activities began at the Eastern Bypass. Please revise to clarify that the EBS was conducted to document the site environmental conditions prior to the commencement of excavation activities for the Eastern Bypass.

Response 2: Agree. The text was revised per comment.

Comment 3: Page 4-7, lines 31-34: This sentence states that well PPMP-233-GP06 was dry during the April and May 2000 sampling events. The rest of the report states that the wells PPMP-233-GP03, PPMP-233-GP05, and PPMP-233-GP06 were dry during sampling. Please clarify the text to accurately reflect which wells were dry for each particular sampling event.

Response 3: Disagree. The text indicates that PPMP-233-GP06 was dry during *well development* in April and May 2000. There was only one sampling event (July 2000). No changes to the text are necessary.

Comment 4: Sheet 1 of 5: Trench number at bottom of page should read PPMP-233-T233-1A&B.

Sheet 1 of 5: On the back of this page there is a copy of the “Test Pit Classification Log” which appears to be mis-numbered and does not contain any data. This sheet is skipped in the page numbering of the trench log, and the “Trench Number” space at the top and bottom of the sheet appears incorrect. This page also seems to be redone as Trench T233-B on page 5 of 5

of the trench report. Please identify this page and correct it or, if it is not part of the trench log, remove it from the report.

Response 4: Agree. The trench logs were reviewed and corrected.

Comment 5: **Appendix C, Sample Collection Log.**
Location Code PPMP-233-GP02, Sample Number KZ0005-MS: “End Depth”.
Corrections made with no initials indicating the identity of who made the change.

Location Code PPMP-233-GP02, Sample Number KZ0005-MSD: “End Depth” change made without the corrected number in the blank.

Response 5: Agree.

Comment 6: **Appendix J, Page 1 of 19, 2nd paragraph: Based on ADEM’s understanding of the sampling work completed by Fort McClellan, the text should be revised to indicate that the surface samples were collected from the 0-1 foot interval below ground surface, not 0-2 feet.**

Response 6: Agree. The text was revised per comment.

**Response to U.S. Environmental Protection Agency Comments
Draft Site Investigation Report, Fill Area West of Range 19, Parcel 233(7)
Fort McClellan, Calhoun County, Alabama (dated November 5, 2003)**

Comments from Doyle T. Brittain, EPA Senior Remedial Project Manager, dated January 22, 2004.

GENERAL COMMENTS

Comment 1: Parcel 233(7) was identified as a fill area on a 1949 aerial photograph. No information is available on the type of material placed at this location. Rocks, metal debris, dirt mounds, and partially exposed crushed drums were observed by Shaw during a site visit. So, a geophysical survey was conducted. The geophysical survey identified an anomalous band of high conductivity in the northeastern portion of the site, roughly parallel to Troop Road (Figure 4-1). The geophysical survey did not reveal the presence of substantial amounts of buried metal. Exploratory trenches within the high conductivity anomaly did not reveal the presence of buried debris. Six surface soil, six subsurface soil, one depositional soil, and one ground water sample were taken prior to the construction of the Anniston Eastern Bypass.

A. Barium and manganese in surface soil exceeded background, ecological, and human health site-specific screening values. Barium and manganese concentrations above the ecological screening values indicate potential toxicity to soil invertebrates. Manganese and barium were determined to be naturally occurring by the geochemical evaluation. It is possible for natural levels to be as high. Since the concentrations in soil might be naturally occurring and since the construction of the Anniston Eastern Bypass has altered the habitat to reduce the potential for exposure to ecological receptors, no further ecological evaluation of soils is recommended.

Response 1-A: Agree.

B. The chromium and nickel in the ground water are worth pointing out because they exceeded background and human health site-specific screening values. The geochemical evaluation concluded that chromium and nickel in ground water were not naturally occurring. Chromium and nickel are uncommonly detected in groundwater at Fort McClellan. Even in places where they were detected, levels at Parcel 233(7) stood out as anomalously high. (See figures at the end of Appendix J.) Chromium and nickel, detected in groundwater, were judged to be anomalously high relative to the reference elements and may be indicative of contamination. With

data from only one well (one sample) conditions in groundwater are largely unknown. The sample could represent the edge of a larger plume of contamination. The pesticides detected in groundwater may also indicate contamination. The pesticide aldrin was also detected at levels above the human health site-specific screening levels. With such little information on the concentrations in ground water, the degree of human health risk is largely uncertain. Therefore, EPA recommends additional investigation of this Parcel including some soil sampling but with particular emphasis on characterizing the nature and extent of contamination in the groundwater.

Response 1-B: Agree that data from only one well yields limited information on groundwater conditions. To address the presence of chromium and nickel in groundwater, groundwater data were evaluated from four additional wells that closely surround the site. Two of these wells (HR-73Q-MW02 and HR-73Q-MW03) are located upgradient approximately 400 and 800 feet of the site, respectively. One well (HR-232QX-MW15) is located downgradient at a distance of approximately 200 feet and one well (HR-228Q-MW02) is located sidegradient at a distance of approximately 400 feet.

The data from the surrounding wells indicate that chromium was not detected in any of the wells. Although nickel was detected in one upgradient well (HR-73Q-MW03), the result was "B" flagged, indicating the presence of laboratory artifacts. This result was below the SSSL.

It is also worth noting that the field duplicate sample collected at PPMP-233-GP04 (data shown in Appendix H) contained considerably lower concentrations of both chromium and nickel. The estimated nickel concentration in the duplicate sample (0.0152 mg/L) was below its SSSL (0.031 mg/L) and was approximately five times lower than the concentration in the regular field sample (0.0704 mg/L). The estimated chromium concentration in the duplicate sample (0.0217 mg/L) exceeded the SSSL (0.0047 mg/L) but was approximately six times lower than the concentration in the field sample (0.13 mg/L).

Based on the foregoing information and given the projected reuse of the parcel, impacts to groundwater in the vicinity of Parcel 233(7) appear to be minimal. This information was added to the text, tables, and figures.

Disagree that one estimated concentration of aldrin in groundwater slightly above SSSL indicates great uncertainty to the degree of human health risk. Although aldrin was not analyzed in the four surrounding monitoring wells described above, aldrin was not detected in soil samples collected from PPMP-233-GP04 or in any of the other surface and subsurface soil samples collected at the site. Furthermore, the aldrin detection was at an extremely

low estimated value, 0.000034 mg/L. The SSSL for aldrin is 0.0000039 mg/L. Accurate and precise quantification at these concentrations is not anticipated.

A streamlined human health risk assessment (SRA) was performed for Parcel 233(7) as part of the EE/CA (IT, 2002). Resident, recreational site-user, and the highway worker receptor scenarios were evaluated. The calculated incremental lifetime cancer risk (ILCR) for aldrin was 8.68E-06, at the low end of the risk management range of 1E-6 to 1E-4.

Cancer-based SSSL (SSSLc) and noncancer-based SSSL (SSSLn) may be estimated for each chemical. SSSLn values are calculated to reflect an HI of 0.1, an order of magnitude below the threshold level of 1, to provide additional protection for simultaneous exposure to multiple chemicals. The SSSLn for aldrin is 4.67E-5 mg/L. SSSLc values are calculated to reflect an ILCR of one-in-a-million (1E-6), the point below which cancer risk is generally considered to be negligible. The SSSLc for aldrin is 3.92E-6 mg/L. The SSSLn and SSSLc can be applied to ambient concentrations to calculate the HI and ILCR for a given receptor exposure scenario. Both the noncancer hazard index (HI) and ILCR estimates must fall within acceptable limits for a site or exposure scenario to "pass."

EPA Region 4 guidance for groundwater specifies that the source-term concentration (STC) of a chemical should be the arithmetic mean of concentrations in the most highly contaminated part of the plume. Although guidance does not address the issue, generally the maximum detected concentration is chosen if a plume cannot be identified with reasonable confidence. Because the data could potentially reflect the most contaminated part of a plume, the STC of 3.4E-5 mg/L is used for aldrin in groundwater. Application of the SSSLn and SSSLc discussed above yields an equivalent HI of 0.07 and an ILCR of 9E-6 (results rounded to one significant figure as recommended by EPA guidance).

Therefore, the Army maintains that further investigation for aldrin is not warranted: there is no indication of aldrin from its detection in associated media, the results of the SRA indicate that aldrin does not pose a threat to human health, and the value itself is an extremely low estimated concentration.

Comment 2: **As the proposed land use has changed, converting more into residential future use, the report could be improved, and the case for the ground water strengthened, if the distance to the nearest potential future ground-water receptor was included.**

Response 2: Comment noted. However, the Army is only aware of one proposed reuse for this parcel: the Anniston Eastern Bypass Corridor. Furthermore, there are no

known plans for future potable wells or potential groundwater receptors. The city of Anniston provides drinking water to all its residents from two water supply wells located several miles away. These wells are regularly monitored for water quality. Chromium, nickel, and aldrin have never been detected in the public water supply for Anniston.

No health-based violations found. EPA has no record of any health-based violations reported by the state for this water system (1993 and later violations are included in this report). No monitoring or other violations found. EPA has no record of monitoring or other violations reported by the state for this water system (1993 and later violations are included in this report).

Reference: http://oaspub.epa.gov/enviro/sdw_report.
Anniston, AL. Water System ID AL0000133

SPECIFIC COMMENT

Comment 1: **Figure 3-1, Sample Location Map. Six surface (and subsurface) soil samples and one depositional soil sample were collected at Parcel 233(7). The depositional soil sample was collected in a manmade culvert along Iron Mountain Road approximately 500 feet southeast of the parcel boundary. The site drainage is to the north emptying into the tributary to Remount Creek, 500 feet to the east. Thus, the location of the depositional sample was less than optimal because it was not downgradient of the site.**

Response 1: Agree. The sample was collected in a drought year (2000), from the only available area of surface runoff deposits in the vicinity. Please recall that the year 2000 was the eighth driest year on record in the State of Alabama.